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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,083	02/18/2005	Armin Fuchs	1454.1598	5098
21171	7590	02/01/2006	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			YOUNG, BRIAN K	
			ART UNIT	PAPER NUMBER
			2819	

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/525,083	FUCHS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Brian Young	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 18 February 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 9-16 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 9-14 is/are rejected.  
 7) Claim(s) 15 and 16 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 18 February 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____ .  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/18/05</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____ .                                  |

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 9-16 must be renumbered 11-18. The originally filled claims (cancelled by pre-amendment) were 1-10 (see the **original PCT claims**).

### **35 U.S.C. 103 Rejection**

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 9-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Da Franca et al.

**Regarding claim 9** Franca et al. disclose (see figure 2) a configuration for digital-analog conversion of a digital input signal (DATA) into an analog output signal (ANALOG OUT), including delay devices (D0 –DN-1) with each delay element having an input and an output, the input of a first delay element receiving the digital input signal and the additional delay elements connected downstream from the first delay element in a serially consecutive manner, D/A converters (DACs: X0 to XN-1) having an input

connected to the output of a corresponding delay element, all D/A converters controlled to form the analog output signal, where a filter characteristic is realized by assigning specific coefficients ( $h_0$  to  $h_{N-1}$ ) to the first and at least one subsequent D/A converter outputs, respectively, and a specific delay time to each delay element, for a total delay time corresponding to part of a clock period of the clock signal such that the filter characteristic is automatically adjusted if there is a change in frequency.

Franca et al. recites (col.2, Ins.32-50):

"The filtered digital-to-analogue conversion apparatus shown in FIG. 2 receives successive w-bit **digital samples of a signal to be converted**. The digital words are fed to a chain of N w-bit wide D-type bistable flip-flops D<sub>0</sub> . . . D<sub>N-1</sub> which are clocked at sampling rate F.sub.s with clock pulses .phi. **so that a digital word, delayed by a respective number of sample periods**, is available at the output of each flip-flop. These outputs are converted into analogue form by **digital-to-analogue converters** X<sub>0</sub>. X<sub>N-1</sub>, which produce at their outputs successive analogue samples corresponding to the digital samples supplied to them. The analogue outputs are multiplied by respective **filter coefficients** h<sub>sub.0</sub> . . . h<sub>sub.N-1</sub>; multipliers M<sub>0</sub> . . . M<sub>N-1</sub> are shown though in practice it may be more convenient to achieve the same effect by applying appropriate reference voltages to the converters X<sub>0</sub>."

It is noted that Da Franca et al do not specifically recite that the DAC / filter is used to output a carrier frequency analog signal.

However, Holm discloses (fig.4) a DAC (40) outputting a signal (40c) that is filtered (42) to output a carrier frequency analog signal (30d).

Holm recites (col.7,ln.30-34):

**The DAC means output signal is frequency filtered** in a bandpass filter means 42 and the resulting quadrature-phased **carrier frequency signal** is made available as the desired output signal O(t) at modulator output 30d.

Therefore, it would have been obvious to one having ordinary skill in the art, and these teachings before him, to utilize the filtering DAC of Da Franca et al to form an analog carrier frequency signal, as taught by Holm, because carrier frequency signals are useful in communications systems and Da Franca et al specifically states that the filter coefficients are selected according to the implementation of the filter (col.3, ln.46-48) "filter coefficients **many be chosen** to weight the contribution of that array to the final output by a factor corresponding to the appropriate one **of the desired filter coefficients**" Therefore, it is obvious that the filtering would be controlled to produce the desired output frequency.

**Regarding claim 10** Da Franca et al disclose the configuration as an FIR filter.

Da Franca et al recite (col.5,ln.62-65):

"An implementation of a **combined digital-to-analogue converter and FIR filter** based on the binary-weighted time slot array architecture described above is illustrated in FIG. 7."

**Regarding claim 11** Da Franca et al disclose (fig.2) that the delay elements are d latches (D0 to DN-1) controlled by the same timing signal (theta).

**Regarding claim 12** Da Franca et al recite that the converter's inputs receive "respective bits" of the input data (col. 1, ln.50-54).

**Regarding claim 13** Da Franca et al disclose (fig.2) an adding device (A) for combining the DAC outputs.

**Regarding claim 14** Da Franca et al recite the delays producing a plurality of "mutually delayed" signals (col.1, ln.41-43).

4. **Claims 15 and 16** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Brooks and Main disclose filter /DACs having delay element inputs.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Young whose telephone number is 571-272-1816. The examiner can normally be reached on Mon-Fri 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rexford Barnie can be reached on 571-272-7492. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Brian Young  
Primary Examiner  
Art Unit 2819

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